Identification of parental stressors in an Australian neonatal intensive care unit.

Abstract:

Aims:
This study explored the types and levels of stress in parents with infants in a South Australian NICU, and identifies the psychometric properties of the Parental Stressor Scale: Neonatal Intensive Care Unit (PSS:NICU) in this Australian setting.
Background:
It is well recognised that many parents experience stress following a preterm birth and subsequent hospitalisation and separation from their baby or from the admission of a newborn infant to intensive care.
Methods:
This mixed method study used a parental stress assessment tool, a maternal needs inventory, and a measure of the degree of required therapeutic interventions for the neonate to assess types and levels of parental stress. Quantitative and qualitative data was collected and analysed using descriptive statistics and thematic analysis respectively.
Results:
Moderate stress levels in parents (n=40), predominantly related to alteration of their parental role, and the appearance and behaviours of their infant was demonstrated. These findings are further supported by a qualitative analysis and maternal needs inventory assessment which suggests the need for good communication, information sharing and consistent and empathetic staff practices.
Conclusion:
These findings suggest the need to develop local interventions to reduce stress and enhance parents' abilities and understanding of their infant. Furthermore, despite the low number of participants, the PSS:NICU subscales were found to be reliable.
Implications for Practice:
Neonatal nurses working in a NICU environment need to be aware of the common situations which cause stress in parents, and develop skills in communicating with and supporting parents through this traumatic period.

Key words

neonatal intensive care
parental stress
stress
parent coping
PSS-NICU

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Word Count

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What is known about this topic?

- Parents of infants admitted to the NICU experience stress from a variety of causes which are often poorly understood by clinicians.
- Measurement of parental stress in the NICU and assessment of parental needs is a valuable component of family centred care.
- The psychometric properties of the Parental Stressor Scale: Neonatal Intensive Care Unit have not been evaluated in an Australian population.

What this paper adds?

- The PSS:NICU demonstrated appropriate psychometrics however only for a small sample of Australian parents (n=40).
- The Critical Care Maternal Needs Inventory is a useful tool to evaluate and understand maternal needs.
- Qualitative responses provided depth and description to the sources of stress for parents in the South Australian NICU.

Introduction

Neonatal care is an integral component of maternity services in South Australia. The most recent statistics demonstrate that Level II care (special care neonatal services) was used by 15.3% of all neonates, and 2.9% of neonates required Level III care (intensive care neonatal or paediatric services)[1]. These figures represent a significant number of neonates (n=3,603) requiring hospitalisation[1] which has a significant impact on families.

It is well recognised that many parents experience stress following a preterm birth and subsequent hospitalisation and separation from their baby or from the admission of a newborn infant to intensive care[2,3]. Preterm infants are at greater risk of long term neurodevelopmental disabilities than term infants [4] and studies have shown that child neurodevelopmental disability is associated with higher parental stress and family burden[5,6]. Furthermore, high stress in parents of preterm infants has been shown to exert long term effects on child development outcomes[7]. If neonatal nurses understand the experiences of parents of preterm babies, they could better involve them in decision making, and design intervention programs to reduce parental stress and improve long term outcomes. This study aimed to identify the sources of parental stress in one neonatal intensive care unit (NICU) in Australia, and to validate the tools used to measure parental stress.

Background

Neonates born premature, or with medical conditions such as respiratory distress syndrome or asphyxia frequently require intensive care. Having a newborn infant in a neonatal intensive care unit (NICU) is usually unexpected and stressful for parents and families[8-12]. Stress is found to be multifaceted and related to a variety of reasons, including the

alteration of the expected parental role as well as their infant's appearance and fragility[8-10]. The unfamiliar, intense, noisy and busy appearance of the NICU also contributes to parents' sense of helplessness, anxiety and fear which impact on their stress experience[8-10,13].

As parents become anxious and stressed, their ability to bond and attach to their baby may be affected. Neonatal health problems and admission to a NICU has been shown to reduce emotional involvement and bonding between mother and infant[14]. Elevated stress levels with depressive symptoms[15] and symptoms of acute stress disorder[16] have been identified in parents at the time of birth of their sick or preterm infant. High levels of parental stress and lower perceptions of parental competence, compared to parents of healthy full-term infants, has been demonstrated at two months after infant discharged from NICU[17]. Posttraumatic stress disorder at 4 months post birth has also been identified in the parents who had developed symptoms of acute stress disorder following preterm birth[16]. The high levels of stress experienced by parents in the NICU can last beyond the infant's first year of life[18], and adversely affect the long term relationship between baby and parent.

The practices of healthcare professionals including medical and nursing staff identified by parents of preterm infants as desirable whilst their baby is in NICU include communication[19-21], access[20] and information[21]. Mothers have been shown to need reliable, accurate, honest and topical information about their baby, and regular communication[19]. Structured education provided within a week of their baby's admission to NICU has been shown to statistically significantly reduce stress scores of mothers[22]. Unrestricted access to the NICU has been found to reduce stress, anxiety and somatic symptoms in mothers[20]. Communication and information in the form of 'assurance' has been recognised as an

important need[23]. Furthermore, an educational-behavioural intervention program, which explained the preterm infant's behavioural and physical characteristics and taught mothers how to meet their infant's needs has been shown to lessen post-discharge maternal anxiety and depression[24].

Psychological and emotional support for parents therefore is an important component of holistic family centred care in the NICU setting as well as in the home after discharge[17]. However, health professionals have been shown to not always recognise parents' needs and desires in the neonatal intensive care unit[25], and stress remains a significant issue for these parents.

This study aimed to explore the types and levels of stress in parents with infants in an Australian NICU, and to determine the psychometric properties of the Parental Stressor Scale: Neonatal Intensive Care Unit (PSS:NICU)[10,26] and a related instrument, the Critical Care Maternal Needs Inventory[19] (CCMNI) in this Australian setting. This study was undertaken as a part of a larger collaborative study which included tertiary NICUs in Melbourne and Perth. The PSS:NICU[10,26] which identifies sources of parental stress has been validated in North America[8-10,27] and in the United Kingdom[28]. The CCMNI [19] was adapted from the Critical Care Family Needs Inventory[29] and asks mothers to state their needs and priorities while their baby is in NICU. Neither tool has yet been validated in the Australian context. It was hypothesised that these two tools, once validated could serve as research or clinical measures and provide important baseline information for the development of support programs for parents of high-risk infants in the NICU.

Method

Design

This study was designed to use (a) a parental stress assessment tool previously validated overseas known as the PSS:NICU[10,26]; (b) a maternal needs inventory, the CCMNI[19,29]; as well as (c) a measure of the degree of required therapeutic interventions for the neonate whilst in NICU using the Neonatal Therapeutic Intervention Scoring System (NTISS)[30]. The PSS:NICU asks how stressful (from 'not at all stressful' to 'extremely stressful') parents found the sights and sounds of the NICU, aspects of their baby's looks and behaviours, as well as some of the treatments they may have seen done for their baby. The PSS:NICU also asks how they felt about their own relationship with their baby and their role as a parent whilst in the NICU. The CCMNI asks mothers to identify what needs they had while their baby was in intensive care. These include practical needs such as phone access and a place to rest, and information needs such as meeting on a regular basis with the doctors and nurses caring for their baby.

A purposive sample of parents, whose baby(s) had been admitted to the NICU for at least 5 days, was sought to join the study. Mothers and fathers under the age of 18 years were excluded from the study. Participants needed to be able to read and understand English to give informed consent and complete the questionnaires. Enrolment in the study was voluntary, and ethical approval for the study gained from both the Hospital, and the University Ethics Committees. Whilst it was our desire to apply the questionnaires during the NICU admission to capture their sense of stress at that time, the Hospital Ethics Committee would not allow parents to be approached until their baby had moved to the

Level II Special Care Unit, as they believed that they would be too distressed whilst in NICU to join the study. Therefore, we approached families as soon as practicable after their baby's discharge from NICU whilst their experiences were recent and easy to recall.

Data collection

This study was conducted in a tertiary level NICU in South Australia. The unit is one of two in the state that provide a healthcare service for infants with complex health conditions following birth.

Mothers who met the inclusion criteria were approached by a researcher in the Level II Special Care Unit and given an information sheet and consent form inviting them to participate. This invitation was followed up on a subsequent day once they had time to consider the offer, and those who provided written informed consent, were then provided with the two questionnaires (PSS:NICU & CCMNI) to complete and return. Fathers who met the inclusion criteria were similarly approached and after providing written informed consent, were asked to complete the PSS:NICU only. The questionnaires took approximately 15 minutes each to complete. Parents were asked to place completed questionnaires in a clearly marked collection box in the Level II Special Care Unit.

In order to provide a degree of infant illness severity a researcher completed the NTISS[30] for each infant whose parent participated in the study. The final score was calculated manually by a second researcher, and then cross checked by putting the data into an NTISS calculator online (http://www.sfar.org/scores2/ntiss2.html). Both manual and online calculations were equal. Demographic information was gained for each mother (i.e. age, parity, education,

profession etc.) and each baby (i.e. date of birth, gender, gestation) from the medical records. De-identification of all data was ensured by using code numbers, and all data was stored securely, accessible only by the researchers.

Analysis

For the PSS:NICU there are two recognised approaches to data analysis. Metric 1 is a measure of stress perceived when a specific situation occurs[26]. Metric 2 is an overall stress measurement from the environment and may include parents who have found it not stressful at all[26]. The analysis of the data in this study used Metric 2 given the recommendation that if the focus is on parents, then Metric 2 should be used to describe their stress levels[26]. The Metric 2 results were then analysed against the collected variables including age, gender, and NTISS score. The multiple-choice responses of the CCMNI were analysed using descriptive statistics. Frequency counts for each CCMNI item were performed and ranked from 'very important' through to 'not important at all'. The last question in both the PSS:NICU and the CCNMI are open-ended response questions. Qualitative data collected from these questionnaires was analysed descriptively using a thematic analysis approach. Statistical analyses were performed using PASW Statistics 18 software. Qualitative analyses were performed manually and with NVivo 8 software.

Results

Thirty one mothers and thirty fathers were invited to join the study between July 2007 and September 2009. Seven couples did not return completed questionnaires, and seven fathers subsequently declined to join the study, resulting in a total of 40 participants (Mothers n=24; Fathers n= 16). The mean maternal age was 33.1 years (SD 5.9). The mean gestational

age of the participants babies was 28.2 weeks (SD 3.6) (range 24 -40 weeks), with a mean NTISS scores of 34.6 (SD 8.6) (Range 18 – 52). The family status of participants is shown in Table 1.

The results for the Metric 2 calculations of the PSS:NICU are shown in Table 2. Despite the low number of respondents, 5 of the 6 PSS:NICU subscales were found to be reliable with internal consistencies ranging from 0.81 to 0.92. The internal consistency for sights and sounds subscale for mothers was 0.67; additional volume of responses would clarify this consistency. The Metric 2 scores between mothers and fathers were very similar for all three scales. Within subscales there were some differences for individual questions between the mothers and fathers scores in the Infant Appearance and Parental Role Alteration subscales, but not in the Sights and Sounds subscale (the difference here being >.5 score variance in the mean). For the infant appearance subscale, mothers rated the cuts and bruises, colour, size and weak appearance of the infant as more stressful than fathers. Within the responses to the questions related to the altered parental role, mothers rated separation from baby and being 'unable to care for, feed and share my baby' as more stressful than did fathers.

Correlations of Metric 2 scores between mothers and fathers with the variables of the sub scale categories, total NTISS score and gestational age are shown in Table 3. These data show there is a relationship between infant appearance and gestational age for mothers, but not for fathers. This suggests that mothers with younger babies are more stressed by their appearance than are fathers. There was no difference in scores for mothers or fathers whether this baby was their first or a subsequent baby.

The CCNMI results for each item ranked from those grouped as 'Very important' or 'Important' are shown in Table 4. These are in descending order as asked in the questionnaire.

The predominant themes from the thematic analysis of open ended responses related to issues of separation from the baby, communication needs, parental need to understand, impact of staff, and the need for empathy. Within each of these themes, there were examples of both positive and negative influences on the parents' experience and stress.

The stress of separation

Both mothers and fathers spoke of stress from the separation from their baby. This experience was intensified when the baby was unstable, whilst the mother was in the postnatal ward and for mothers when breastfeeding.

> *Leaving my child and going home was very stressful, especially when things were still 'touch and go'* 15M

> *Being on the postnatal ward where other mothers have their babies and caring for them and I didn't. I felt I shouldn't really be there.* 35F

> *Being away from our baby was incredibly difficult, when I was up expressing at night.* 13F

The stress of poor communication

Communication was a core aspect that threaded through all of the respondents comments. Parents wrote of the need for effective communication, and also gave examples of good

communication they had experienced as well as poor communication. The way in which the parent perceived the communication (as good or bad) had a direct impact on their stress experience.

> *It is important that staff, ... don't tell you what you should and should not be doing and feeling e.g. "no need to come and visit every day, your baby doesn't know, and it doesn't help us" or, "no need to get upset, it doesn't help anybody".* 13F

> *What particularly stood out was the calm and reassuring manner with us, and also how they delivered information was very good. We were never given a false sense of hope; they kept to facts about the progress which we thought was excellent* 15F

The stress of not knowing what was happening

Whilst recognising communication as important, parents described a need to understand their baby's progress, and the care provided for their baby. There was a sense of 'it's ok when I understand'.

> *The presence of monitors itself is not stressful; it is not understanding the readings. What is Hi/Lo and is this okay for my baby, are the nurses telling me it's okay to stop my anxiety?* 1M

The stress caused by staff behaviour

The manner in which staff went about their business was recognised as a potential stressor. When staff provided good communication, education and involved parents they made a positive impact on the parents' experience.

> *They explained to me everything that was going on and didn't hold back any information whether it was upsetting or not. They reassured me which they still do. There were times when my baby would turn blue and they jumped into action, not panic and at the same time reassuring me.* 21F

They were professional, knowledgeable, genuinely caring, went beyond any expectations e.g., taking pictures, laminating photos etc. 5F

However, when there were inconsistent staff practices or behaviours considered unprofessional, parental stress increased.

I found the different approaches to care from different staff stressful and confusing -- one nurse would allow me to do something, another would not. 13F

The noise was stressful as sometimes people would be yelling across the room to each other and laughing very loud etc. 19F

To be able to feel like I AM the mother of my baby and not some of the nurses. If I do something 'wrong' to not be told off like a child e.g. doing baby's cares. 14F

The stress of not being understood

Parents described a need to be understood by staff, as well as their family and friends. They did not want people to pity them but rather described a need for empathy of their situation. They wanted clear and accurate information, guidance, understanding and empathy from people around them.

It is extremely important for staff to be as positive as possible about his progress also without giving false hope or ideas in the process. Negativity towards our decisions or about our baby can be extremely upsetting and hurtful, as well as being seen as judgemental. 7F

> *The real stress came from the outside world -- work commitments, paperwork from everywhere, changed plans, lack of understanding from family and friends. For example thinking you 'have it easy', because your baby is in hospital, expressing milk endlessly, exhaustion from running back and forth, broken sleep etc.* 1F

Other stressors mentioned included the general physical environment of the NICU, breastfeeding supports and issues of privacy.

Discussion

The results of this study have shown that the participant parents did experience moderate to high levels of stress with regard to their baby's stay in NICU. Mothers in this study experienced higher mean scores for stress in each of the three subscales then did fathers although this was not statistically significant. Our study has shown that the highest level of stress was in the parental role alteration subscale closely followed by the infant appearance for both mothers and fathers. This concurs with other studies although the degree of stress in our study compared to these was greater[9,24,28,31] (see Table 5). Our results showed a greater stress score for mothers of infants of lower gestation, and this is consistent with the findings of Dudek-Shriber[31] and Shields-Poe and Pinelli [8], although Shields-Poe and Pinelli [8]stated that the association in their study was related to perceived sickness and not merely gestation.

The CCNMI results were also consistent with the qualitative analysis of the open responses. Twenty two of the 39 items were ranked by more than 85% of respondents as 'very important' or 'important' and all of these fit within one of the five qualitative themes

identified. The most frequent maternal needs identified from the CCNMI related to communication and the need for information and understanding, which correlated with the qualitative themes presented. This also concurs with the writings of Boyd [7] who advocates informational support for parents, and Bialoskurski and colleagues [19] who found that mothers prioritised the need for infant related information and highly valued good communication with staff.

Limitations

The primary limitation of this study is the small sample size recruited from one NICU. This was due mainly to the inability of the researcher to be present in the SCBU following up new admissions on a more regular basis. The delay in recruiting participants after the transfer from NICU to SCBU may have affected recall of stressful feelings and memories. Furthermore, the PSS:NICU does not take into account what else is going on in parents' lives that may affect their stress experience. The numbers of participants was insufficient to determine if there was a variation amongst variables including age, marital status and first or subsequent pregnancies or NTIS score.

Conclusion

Our study has demonstrated moderate stress levels in parents of neonates in a South Australian NICU, predominantly related to alteration of their parental role, and the appearance and behaviours of their infant. These findings are further supported by the qualitative analysis and CCNMI which suggests the need for good communication, information sharing and consistent and empathetic staff practices. These findings suggest the need to develop local interventions to reduce stress and enhance parents' abilities and

understanding of their infant. The results for the Metric 2 calculations of the PSS:NICU showed that despite the low number of participants, the PSS:NICU subscales were found to be reliable. Further research on ways to increase the guidance, support and involvement of parents to achieve a satisfactory parental role throughout the neonatal stay are warranted.

Implications for practice

Neonatal nurses working in a NICU environment need to be aware of the common situations and environmental sights and sounds which cause stress in parents, and develop skills in communicating with and supporting parents through this traumatic period. Domain 1 of the Australian College of Neonatal Nurses Competency Standards[32] concerning the provision of family-centred care, states that neonatal nurses should understand the stresses that families face, and assist them with their spiritual, psychosocial and cultural needs. Given the effects of stress on parents of preterm and sick babies demonstrated in this study, and the long term impact this has on the neurobehavioural development on the infant, this professional requirement should be a priority for the daily care provided by neonatal nurses.

Table 1: Family status

Family Status	**Male (n=16)**	**Female (n=24)**
Married	12	20
Living with Partner	2	2
Single parent	0	1
No response	1	1
First time parent	13	18

Table 2: Metric 2 calculations of the PSS:NICU

	Mothers			Fathers		
Scale and Subscale	Mean	SD	Internal consistency	Mean	SD	Internal consistency
Sights and Sounds (6 items)	**2.70**	**0.67**	**0.67**	**2.64**	**0.87**	**0.81**
Monitors and equipment	2.67	1.17		2.50	1.15	
Constant noise of monitors	2.92	1.10		2.94	1.00	
Sudden noise of monitors	3.83	.87		3.63	1.36	
Other sick babies	1.87	.85		2.00	.97	
Large number of staff	1.62	.82		1.60	.91	
Machine breathing for my baby	3.29	1.55		3.06	1.77	
Infant Appearance (17 items)	**3.28**	**0.85**	**0.88**	**2.95**	**0.95**	**0.92**
Tubes and equipment	3.67	1.09		3.19	1.28	
Bruises and cuts on baby	4.08	1.10		3.00	1.56	
Unusual colour of baby	3.33	1.31		2.63	1.50	
Unusual breathing patterns of baby	3.88	1.08		3.69	1.30	
Small size of baby	3.37	1.28		2.81	1.47	
Wrinkled appearance of baby	2.29	1.52		2.13	1.09	
Seeing needles/tubes put in baby	3.42	1.50		3.25	1.53	
Seeing baby being fed by tube	2.17	1.24		2.75	1.24	
Seeing baby in pain	4.58	.65		4.19	1.17	
Seeing baby look sad	3.62	1.64		3.38	1.20	
Limp and weak appearance of baby	4.17	1.27		3.50	1.51	
Restless movements of baby	3.42	1.28		3.25	1.18	
Baby not able to cry	2.58	1.47		2.56	1.67	
Seeing baby cry for long periods	1.83	1.34		1.50	1.10	
Seeing baby look afraid	3.00	1.84		2.69	1.70	
Seeing baby change colour	3.17	2.04		2.94	1.95	
Seeing baby stop breathing	3.25	1.98		2.75	1.91	
Parental Role Alteration (11 items)	**3.28**	**0.79**	**0.83**	**3.03**	**0.92**	**0.89**
Separation from Baby	4.25	1.26		3.63	1.26	
Not able to feed my baby	3.29	1.49		2.25	1.18	
Not able to care for my baby	3.38	1.21		2.69	1.45	
Not able to hold my baby when I want	4.08	1.28		3.69	1.25	
Unable to protect from pain	4.46	.78		4.31	1.08	
Feeling helpless to help baby	4.00	1.18		4.31	1.20	
Not able to have alone time with baby	3.21	1.64		3.06	1.61	
Forgetting what my baby looks like	1.29	.86		1.62	1.36	
Unable to share baby with others	2.92	1.56		2.31	1.25	
Afraid to touch or hold baby	2.96	1.33		3.31	1.45	
Feeling staff closer to my baby than I am	2.25	1.42		2.19	1.38	

Table 3: Correlations of PSS:NICU Metric 2 scores

Gender	Subscale	Analysis	Metric 2 Sights and Sounds	Metric 2 Infant Appearance	Metric 2 Parental Role Alteration	Total NTISS	Gestational Age
Female	Metric 2 Sights and Sounds	Pearson Correlation	1	.652**	.593**	.081	.039
		Sig. (1 tailed		.000	.001	.354	.429
	Metric 2 Infant Appearance	Pearson Correlation	.652**	1	.660**	.311	-.351*
		Sig. (1 tailed	.000		.000	.069	.046
	Metric 2 Parental Role Alteration	Pearson Correlation	.593**	.660**	1	.274	-.165
		Sig. (1 tailed	.001	.000		.097	.221
	Total NTISS	Pearson Correlation	.081	.311	.274	1	.000
		Sig. (1 tailed	.354	.069	.097		.500
	Gestational Age	Pearson Correlation	.039	-.351*	-.165	.000	1
		Sig. (1 tailed	.429	.046	.221	.500	
Male	Metric 2 Sights and Sounds	Pearson Correlation	1	.757**	.696**	-.219	.241
		Sig. (1 tailed		.000	.001	.208	.185
	Metric 2 Infant Appearance	Pearson Correlation	.757**	1	.769**	-.231	.174
		Sig. (1 tailed	.000		.000	.195	.260
	Metric 2 Parental Role Alteration	Pearson Correlation	.696**	.769**	1	-.261	.262
		Sig. (1 tailed	.001	.000		.164	.164
	Total NTISS	Pearson Correlation	-.219	-.231	-.261	1	.130
		Sig. (1 tailed	.208	.195	.164		.316
	Gestational Age	Pearson Correlation	.241	.174	.262	.130	1
		Sig. (1 tailed	.185	.260	.164	.316	

* Correlation is significant at the 0.05 level (1-tailed).

** Correlation is significant at the 0.01 level (1-tailed).

Table 4: Frequency of rankings of CCNMI items as 'very Important' or 'Important' in descending order.

Item Number	Maternal Need	Frequency
1	To know how the baby is progressing	1.00
5	To have questions answered honestly	1.00
9	To be allowed to visit any time	1.00
12	To know why things were done for your baby	1.00
13	To feel there is hope	1.00
15	To know what medical treatment your baby is receiving	1.00
16	To be assured that the best care possible is being given to your baby	1.00
17	To know exactly what is being done for your baby	1.00
32	To have explanations given that are understandable	1.00
33	To help with your baby's physical care	1.00
34	To be told about transfer or discharge plans while they are being made	1.00
35	To be called at home about changes in your baby's condition	1.00
37	To feel that the hospital personnel care about your baby	1.00
38	To know specific facts concerning your baby's progress	1.00
39	To see your baby when you want to do so	1.00
8	To have directions as to what to do for your baby and what not to do	.96
14	To know about the type of staff members taking care of your baby	.96
36	To receive information about your baby once a day	.96
2	To have explanations of the environment before going into the Unit for the first time	.92
3	To talk to the doctor everyday	.87
10	To know which staff members could give what type of information	.87
19	To feel accepted by the hospital staff	.87
18	To have comfortable furniture in the Neonatal Unit	.83
6	To be able to talk about negative feelings such as guilt or anger	.79
26	To be assured it is alright to leave the hospital for a while	.79
30	To have a bathroom near the Neonatal Unit	.79
11	To have friends nearby for support.	.75
7	To have good food available in the hospital	.71
23	To be able to talk to someone about the possibility of your baby's death	.67
20	To have a social worker to help with problems if needed	.67
31	To be able to be by myself at any time	.67
4	To have a specific nurse to call at the hospital when I am unable to visit	.62
24	To have another person with you when visiting the Neonatal Unit	.58
25	To have someone be concerned with your health	.58
29	To be told about the groups that could help with problems	.58
21	To have access to a nearby telephone	.33
27	To talk to the same nurse every day	.33
28	To be encouraged to cry	.33
22	To have the head of your religious denomination to visit	.25

Table 5: PSS:NICU metric 2 score comparison

Authors	Country	Sample size	Infant behaviour & appearance	Parent role alteration	Sights & sounds
Sweet & Mannix [a]	Australia	Female n=24	3.28	3.28	2.70
		Male n=16	2.95	3.03	2.64
Miles & Brussen [33 a]	United States	Female n=81	4.2	3.8	2.7
		Male n=43	3.7	2.9	2.1
Foster et al [34 a]	Australia	CPAP n= 51	3.38	3.37	2.41
		Headbox n= 42	3.37	3.14	2.53
Franck et al [28 b]	United Kingdom	n=196	2.46	2.98	2.29
	United States	n=61	2.28	2.75	1.68
Dudek-Shriber [31 b]	United States	n= 162	2.55	3.22	2.28
Melnyk et al [24 b]	United States	n=246	1.87	2.86	2.07
Seideman et al [9 b]	United States	n=31	3.15	3.29	2.4

[a] Used the original 3 subscale PSS:NICU[10]

[b] Used a modified 4 subscale PSS:NICU

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